NON-PUBLIC?: N
ACCESSION #: 9503310020
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Washington Nuclear Plant - Unit 2 PAGE: 1 OF 3

DOCKET NUMBER: 05000397

TITLE: Reactor Scram Due to Main Turbine Control System Malfunction
EVENT DATE: 2/26/95 LER #: 95-004-00 REPORT DATE: 03/25/95

OTHER FACILITIES INVOLVED: N/A DOCKET NO: 05000

OPERATING MODE: 1 POWER LEVEL: 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION:
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: Bruce R. Hugo, Compliance Engineer TELEPHONE: (509) 377-8593

COMPONENT FAILURE DESCRIPTION:
CAUSE: X SYSTEM: JJ COMPONENT: PMC MANUFACTURER: W120
REPORTABLE NPRDS: Y

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

At 1739 hours on February 26, 1995, with WNP-2 in operational Condition 1 (Power operation) at 100% power, a malfunction in the main turbine digital electro-hydraulic (DEH) control system caused all four high pressure turbine governor valves to rapidly close. The resulting decrease in steam load caused reactor pressure and power to increase until a scram on high neutron flux occurred. All control rods inserted normally. operators completed the scram recovery procedure and placed the reactor in a stable condition. Plant systems and components operated as expected and the recovery was uneventful.

The cause of the DEH system malfunction was a blown fuse on a circuit card that processes the governor valve position limit signal. The cause of the blown fuse is believed to have been a failure on the circuit card. The suspected faulty circuit card was replaced and the DEH system retested satisfactorily.

This event is bounded by the turbine trip transient evaluated in WNP-2's Final Safety Analysis Report and had negligible safety significance.

END OF ABSTRACT

Event Description:

At 1739 hours on February 26, 1995, with WNP-2 in operational Condition 1 (Power Operation) at 100% power, a malfunction in the main turbine digital electro-hydraulic (DEH) control system JJ! caused all four high pressure turbine governor valves TA, V! to rapidly close. The resulting decrease in steam load caused reactor pressure to increase with a corresponding increase in reactor power. Although the turbine bypass valves JI! opened in response to the increasing reactor pressure, their capacity is only 25% of rated steam flow. Reactor pressure and power increased until a scram on high neutron flux occurred. All control rods AA, ROD! inserted normally.

The reactor pressure increase was terminated by the combined effects of the reduced steam production due to the scram, the operation of the turbine bypass valves, and the opening of two main steam safety/relief valves SB, RV! in relief (pneumatically operated) mode. Reactor pressure had increased from its initial value of 1010 psig to 1071 psig.

The subsequent power reduction caused reactor level to decrease from its normal value of 36 inches to -7 inches. This is above the high and low pressure emergency core cooling systems' (ECCS) BG, BM, BO! automatic start setpoints of -50 inches and -129 inches respectively; therefore, no automatic ECCS initiation occurred. By 1741 hours reactor water level had been restored to above 36 inches by the feedwater level control system JB!.

Immediate Corrective Action:

Operators completed the scram recovery procedure and placed the reactor in a stable condition.

Further Evaluation:

The reactor scram was reported at 1959 hours on February 26, 1995, via the Emergency Notification System per 10 CFR 50.72(b)(2)(ii) as an ". . . event or condition that results in a manual or automatic actuation of . . . the Reactor Protection System . . ." This LER is submitted per the

similar requirement of 10 CFR 50.73(a)(2)(iv).

There were no structures, systems, or components that were inoperable at the start of the event that contributed to the event. Plant systems and components operated as expected and the recovery was uneventful.

Root Cause:

The cause of the DEH system malfunction was a blown fuse FU! on a circuit card (Westinghouse 7300 series programmable driver (NPD) card style 2839A38G02) PMC! that processes the governor valve position limit signal. The resulting loss of circuit card power produced a position limit signal of zero percent open, causing the governor valves to close. The cause of the blown fuse is believed to have been a failure on the circuit card.

Further Corrective Actions:

The suspected faulty circuit card was replaced and the DEH system retested satisfactorily.

A bench test of the faulty circuit card showed that the fuse drew more current than other similar cards in stock; however, the higher current was below the rating of the fuse. The faulty circuit card will be sent to the vendor for evaluation of failure mode.

Safety Significance:

This event is bounded by analysis in WNP-2's Final Safety Analysis Report for a turbine trip from 105% power without bypass valve operation. The consequences of this analyzed transient are acceptable and are limited to discharge of normal coolant activity to the suppression pool via safety/relief valve operations. This event was less significant since it occurred from a lower initial power level and the bypass valves opened to mitigate the reactor pressure increase. Thus this event had negligible safety significance.

Previous Similar Events:

There have been no previous failures at WNP-2 of the circuit board involved in this event.

LER 84-56 described a failure of a DEH protective logic circuit card that caused all four turbine bypass valves to close during power ascension

testing. The resulting pressure transient caused a reactor scram on high reactor pressure.

LER 85-24 described a DEH logic circuit (programmable read only memory) failure that caused all four governor valves to close when the DEH digital computer CPU! was reset during troubleshooting.

ATTACHMENT TO 9503310020 PAGE 1 OF 1

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

P.O. Box 968 o 3000 George Washington Way o Richland,
Washington 99352-0968 o (509) 372-5000

March 25, 1995
GO2-95-058

Docket No. 50-397

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Gentlemen:

Subject: NUCLEAR PLANT WNP-2, OPERATING LICENSE NPF-21,
LICENSEE EVENT REPORT NO. 95-004, REVISION 0

Transmitted herewith is Licensee Event Report No. 95-004 for the WNP-2 Plant. This report discusses the items of reportability, corrective action taken, and action taken to preclude recurrence.

Should you have any questions or desire additional information, please call me or D.A. Swank at (509) 377-4563.

Sincerely,

J. V. Parrish (Mail Drop 1023)
Vice-President, Nuclear Operations

JVP/BRH
Enclosure

cc: LJ Callan, NRC-RIV
KE Perkins, Jr., NRC-RIV, Walnut Creek Field Office
NS Reynolds, Winston & Strawn

NRC Sr. Resident Inspector (Mail Drop 927N, 2 Copies)
INPO Records Center - Atlanta, GA
DL Williams, BPA (Mail Drop 399)

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